

Appl. No. 10/708,619
Amdt. dated July 07, 2005
Reply to Office action of April 20, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

5 Claim 1 (cancelled).

Claim 2 (currently amended): ~~The lumped-element transmission line of claim 1~~ A lumped-element transmission line formed in a multi-layered substrate comprising:

10 ~~wherein the~~ a first inductor is formed on a fourth layer of the multi-layered substrate;
~~the~~ a second inductor is formed on a third layer of the multi-layered substrate and is electrically connected to the first inductor in series through a first via penetrating the substrate; ~~and the~~

15 a first capacitor comprises comprising two plates formed on a second layer and a first layer of the multi-layered substrate, in which wherein the plate formed on the second layer is connected to ground and the plate formed on the first layer is connected to the first via; ~~and~~

a positive mutual inductance formed between the first inductor and the second inductor for improving frequency response of the lumped-element transmission line wherein the positive mutual inductance equals to a first value.

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Claim 3 (original): The lumped-element transmission line of claim 2 wherein the first capacitor is shunt-connected to a second capacitor which comprises two plates formed on a fifth layer and a sixth layer of the multi-layered substrate, in which the plate formed on the fifth layer is connected to ground and the plate formed on the sixth layer
25 is connected to the first via.

Claim 4 (original): The lumped-element transmission line of claim 3 wherein the first and

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second capacitors sandwich the first and second inductors.

Claim 5-8 (cancelled).

- 5 Claim 9 (currently amended): The lumped-element transmission line of claim 1 wherein ~~spirals of~~ the first and second inductors are rectangular, circular, or octagonal in shape.

- 10 Claim 10 (currently amended): The lumped-element transmission line of claim 1 wherein the first value is according to an applied frequency range and values of the first inductor, the second inductor, and the first capacitor.

- 15 Claim 11 (currently amended): The lumped-element transmission line of claim 1 wherein the first value is according to shapes of and relative distance between the first inductor and the second inductor so that the mutual inductance equals the first value.

- 20 Claim 12 (currently amended): The lumped-element transmission line of claim 1 wherein at least one inductor is formed on a plurality of layers of the multi-layered substrate.

Claim 13 (cancelled).

- 25 Claim 14 (new): A method of controlling attenuation in a lumped-element transmission line formed in a multi-layered substrate, the method comprising:
widening an applicable frequency range of the lumped-element transmission line;
adjusting a mutual inductance to a designed positive value according to appropriate shapes of inductors; and
determining the mutual inductance according to frequency a response of the transmission

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